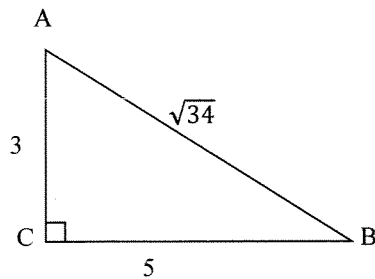
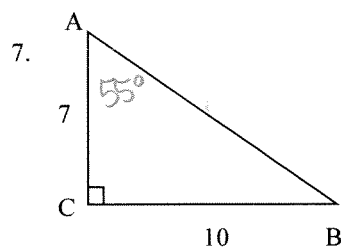


Use the given triangle to find the following trig ratios.

1. $\cos A = \frac{3}{\sqrt{34}}$ 2. $\sec A = \frac{\sqrt{34}}{3}$
3. $\tan B = \frac{3}{5}$ 4. $\csc A = \frac{\sqrt{34}}{5}$
5. $\cot B = \frac{5}{3}$ 6. $\sec B = \frac{\sqrt{34}}{5}$
- Handwritten labels for ratios:*
For $\cos A$: $\frac{\text{adj}}{\text{hyp}}$
For $\sec A$: $\frac{\text{hyp}}{\text{adj}}$
For $\tan B$: $\frac{\text{opp}}{\text{adj}}$
For $\csc A$: $\frac{\text{hyp}}{\text{opp}}$
For $\cot B$: $\frac{\text{adj}}{\text{opp}}$
For $\sec B$: $\frac{\text{hyp}}{\text{adj}}$



Solve each triangle. Angles to the nearest degree and sides to the nearest tenth.



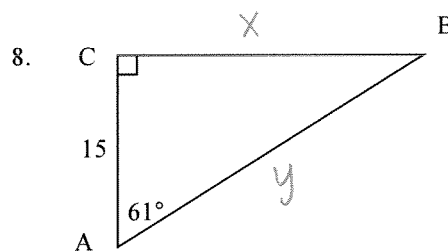
$$\angle A = 55^\circ \quad \tan(A) = \frac{10}{7}$$

$$\angle B = 35^\circ \quad 180 - 55 - 90 =$$

$$AB = \sqrt{149} \approx 12.2 \quad 7^2 + 10^2 = AB^2$$

$$49 + 100 = AB^2$$

$$\sqrt{149} = \sqrt{AB^2}$$



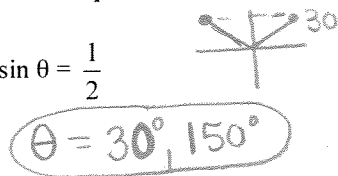
$$\angle B = 29^\circ \quad 180 - 90 - 61$$

$$\tan(61) = \frac{x}{15} \quad BC = 27.1$$

$$\cos(61) = \frac{15}{y} \quad AB = 30.9$$

Solve the equation for $0^\circ \leq \theta < 360^\circ$ (be sure to give all solutions)

9. $\sin \theta = \frac{1}{2}$



10. $\tan \theta = -\sqrt{3}$

$\theta = 120^\circ, 300^\circ$

11. $\cos \theta = \frac{-1}{2}$

$\theta = 120^\circ, 240^\circ$

12. $\sqrt{2} \cos \theta = 1$

$\cos \theta = \frac{1}{\sqrt{2}} = \frac{\sqrt{2}}{2}$

$\theta = 45^\circ, 315^\circ$

13. $\tan^2 \theta = 3$

$\tan \theta = \pm \sqrt{3}$

$+\theta = 60^\circ, 240^\circ$

$-\theta = 300^\circ, 120^\circ$

14. $\tan \theta = \pm \frac{\sqrt{3}}{2}$

$+\frac{\sqrt{3}}{2}$

$\theta = 41^\circ, 221^\circ$

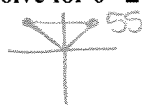
$-\frac{\sqrt{3}}{2}$

$\theta = 319^\circ, 139^\circ$

Use a calculator to solve for $0^\circ \leq \theta < 360^\circ$. (nearest degree)

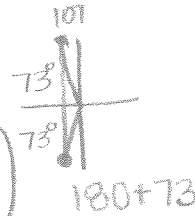
15. $\sin \theta = .82$

$\theta = 55^\circ$
 125°



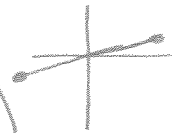
16. $\cos \theta = -.293$

$\theta = 107^\circ$
 253°



17. $\tan \theta = .22$

$\theta = 12^\circ$
 192°



18. $\sin \theta = \pm .361$

$+\theta = 21^\circ, 159^\circ$
 $-\theta = 339^\circ, 201^\circ$



19. $\tan \theta = -2.17$

$\theta = 295^\circ, 115^\circ$



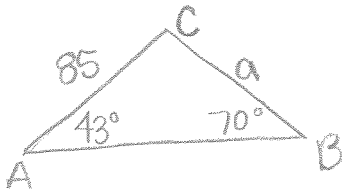
20. $\cos \theta = .733$

$\theta = 43^\circ$
 317°



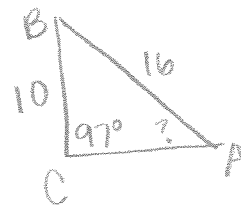
Find the indicated side or angle to the nearest tenth.

21. $\angle A = 43^\circ, \angle B = 70^\circ, b = 85, a = 61.7$



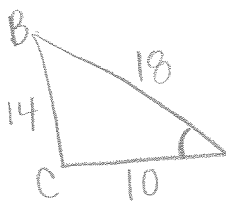
$\frac{\sin(43)}{a} = \frac{\sin(70)}{85}$
 $57.96 = \sin(70) \cdot a$

22. $\angle C = 97^\circ, a = 10, c = 16, \angle A = 38.3^\circ$



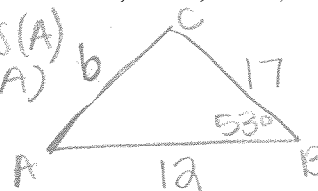
$\frac{\sin(A)}{10} = \frac{\sin(97)}{16}$
 $\sin(A) = .620$

23. $a = 14, b = 10, c = 18, \angle A = 50.7^\circ$



$14^2 = 18^2 + 10^2 - 2(18)(10)\cos(A)$
 $196 = 424 - 360 \cdot \cos(A)$
 $\frac{196 - 424}{-360} = \cos(A)$
 $.633 = \cos(A)$

24. $\angle B = 53^\circ, a = 17, c = 12, b = 13.7$



$b^2 = 17^2 + 12^2 - 2(17)(12)\cos(53)$
 $\sqrt{b^2} = \sqrt{187.46}$
 $b = 13.7$

Solve each equation for x.

25. $x^2 - 7 = 18$

$x^2 = 25$
 $x = 5, -5$

26. $4 + 7^{x-3} = 85$

$7^{x-3} = 81$
 $\log(7^{x-3}) = \log(81)$
 $x-3 = \frac{\log(81)}{\log(7)}$
 $x-3 = 2.26$
 $x = 5.26$

27. $x^2 - 14x + 40 = 0$

$(x-4)(x-10) = 0$
 $x = 4, x = 10$

28. $3 + (x-7)^2 = 39$

$(x-7)^2 = 36$
 $x-7 = 6, x-7 = -6$
 $x = 13, x = 1$